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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/572,831

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YAMA:120

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EXAMINER

PAUL, DISLER

ART UNIT

PAPER NUMBER

2615

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/572,831	Applicant(s) KONAGAI ET AL.	
	Examiner DISLER PAUL	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3;6-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-d 7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to claim 1, wherein "including the control device that changes the directivity of the array speaker while the sound pickup device is picking up sound so that the sound pickup device picks up sound reflected off of different areas of the wall surface or the sound reflection board" have been considered but are moot in view of the new ground(s) of rejection.

And thus, this office action will be made Non-final.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
2. Claims 1-3, 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akio (US 6,111,962) and Yoshino et al. (US 7,054,448 B2) and Yanagawa et al. (US 5,233,664).

Re claim 1, Akio disclose of the audio characteristic correction system for an audio surround system, including an array that reflects sound off a wall surface or a sound reflection board to create a virtual surround, for correcting for audio characteristics of the wall

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surface or the sound reflection board, (fig.5-7; col.7 line 30-37; col.7 line 40-55 & col.8 line 1-19/correction is implemented to created virtual walls sound by all the speakers), the audio characteristic correction system comprising: a sound pick up device for picking up sound from the array speaker that has been reflected off the wall surface or the sound reflection board (fig.5-9, col.7 line 32-55); and a character for correction device for correcting, based on the sound picked up by the sound pickup device, being the gain of an audio signal input to the array speaker such that the sound reflected off the wall surface or the sound reflection board has desired audio characteristics at a desired listening position (fig.8, col.8 line 60-67 & fig.3 (21-28)).

However, Akio fail to disclose of the audio characteristic correction including at least one of the frequency-gain or frequency-phases, But, Yoshino et al. disclose of a system wherein the audio characteristic correction including at least one of the frequency-gain or frequency-phases (fig.3-5; col.7 line 25-67) for the purpose of creating high quality sound field space in consideration of the acoustic condition and space of the audio system. Thus, taking the combined teaching of Akio and now Yoshino et al. as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have incorporated the audio characteristic correction including at least one of the frequency-gain or frequency-

phases for the purpose of creating high quality sound field space in consideration of the acoustic condition and space of the audio system.

While, the combined teaching of Akio and now Yoshino et al. as a whole, disclose of the above with speakers at plurality of locations for outputting sounds. But, they fail to disclose of the specific wherein having the control device that changes the directivity of the array speaker while the sound pickup device is picking up sound so that the sound pickup device picks up sound reflected off of different areas of the wall surface or the sound reflection board. But, Yanagawa et al. disclose of a system wherein having a control device that changes the directivity of the array speaker while the sound pickup device is picking up sound so that the sound pickup device picks up sound at different area of the enclosure and thus inherently including reflected off of different areas of the wall surface or the sound reflection board (fig.1,10; col. 5 line 6- col. 6 line 1-32; col.5 line 20-40/speaker response with directivity control of the array speaker) for the purpose of obtaining consistent directivity covering wide range frequency signal. Thus, taking the combined teaching of the combined teaching of Akio and Yoshino et al. and Yanagawa as a whole, it would have been obvious for one of the ordinary skill in the art to have modify the combined teaching of Akio and now Yoshino et al. as a whole, having a control device that changes the directivity of the array speaker while the sound pickup device is picking up sound so that the sound pickup device picks up sound at different area of the

enclosure and including reflected off of different areas of the wall surface or the sound reflection board for the purpose of obtaining consistent directivity covering wide range frequency signal.

Re claim 2, Akio disclose of the audio characteristic correction system for an audio surround system, including an array speaker that reflect sound off a wall or a sound reflection board so as to create a virtual surround speaker, for correcting for audio characteristics of the wall surface or the sound reflection board (fig.6-7; col.7 line 30-37, col.7 line 40-55 & col.8 line 1-19/correction is implemented to created virtual wall reverberation), the audio characteristic correction system comprising: a measurement means for measuring audio characteristics of the sound reflected on the wall surface or the sound reflection board (fig.3-5 wt col.7 line 50-54 & 35-40/microphone to take in measurement); and a characteristic correction means for correcting, based on the audio characteristics measured by the measurement means the gain of an audio signal input to the array speaker such that the sound reflected off the wall surface or the sound reflection board has desired audio characteristics at a desired listening position (col.8 line 45-67 & fig.3 (21-28), fig.9).

However, Akio fail to disclose of the audio characteristic correction including at least one of the frequency-gain or frequency-phases, But, Yoshino et al. disclose of a system wherein the audio

characteristic correction including at least one of the frequency-gain or frequency-phases (fig.3-5; col.7 line 25-67) for the purpose of creating high quality sound field space in consideration of the acoustic condition and space of the audio system. Thus, taking the combined teaching of Akio and now Yoshino et al. as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have incorporated the audio characteristic correction including at least one of the frequency-gain or frequency-phases for the purpose of creating high quality sound field space in consideration of the acoustic condition and space of the audio system.

While, the combined teaching of Akio and now Yoshino et al. as a whole, disclose of the above with speakers at plurality of locations for outputting sounds. But, they fail to disclose of the specific wherein having the control device that changes the directivity of the array speaker while the sound pickup device is picking up sound so that the sound pickup device picks up sound reflected off of different areas of the wall surface or the sound reflection board. But, Yanagawa et al. disclose of a system wherein having a control device that changes the directivity of the array speaker while the sound pickup device is picking up sound so that the sound pickup device picks up sound at different area of the enclosure and thus inherently including reflected off of different areas of the wall surface or the sound reflection board (fig.1,10; col. 5 line 6- col. 6 line 1-32; col.5 line 20-40/speaker response with directivity control of the array

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speaker) for the purpose of obtaining consistent directivity covering wide range frequency signal. Thus, taking the combined teaching of the combined teaching of Akio and Yoshino et al. and Yanagawa as a whole, it would have been obvious for one of the ordinary skill in the art to have modify the combined teaching of Akio and now Yoshino et al. as a whole, having a control device that changes the directivity of the array speaker while the sound pickup device is picking up sound so that the sound pickup device picks up sound at different area of the enclosure and including reflected off of different areas of the wall surface or the sound reflection board for the purpose of obtaining consistent directivity covering wide range frequency signal.

Re claim 3, the audio characteristic correction system according to claim 2 further comprising a control means for setting at least one of the frequency-gain characteristics, or frequency-phase characteristics of the audio signal input to the array speaker for the characteristic correction means (Yoshino, fig.3-5/equalizing).

Re claim 6, the audio characteristic correction system according to claim 1, wherein the array speaker includes a delay circuit, a plurality of speakers arranged in an array, a plurality of gain adjustment circuits, each for one the speakers, and a plurality of

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amplifiers, each for one of the speakers, contained in a same housing (fig.3-4; col.6 line 45 & col.7 line 8/ with each speaker).

Re claim 7, the audio characteristic correction system according to claim 2, wherein the array speaker includes a delay circuit, a plurality of speakers arranged in an array, a plurality of gain adjustment circuits, each for one the speakers, and a plurality of amplifiers, each for one of the speakers, contained in a same housing (fig.3-4; col.6 line 45 & col.7 line 8/with each speaker).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./

Examiner, Art Unit 2615

/Suhan Ni/

Primary Examiner, Art Unit 2614